



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,778	10/11/2001	Luc Ouellet	12251-US	7550

23553 7590 11/10/2004

MARKS & CLERK
P.O. BOX 957
STATION B
OTTAWA, ON K1P 5S7
CANADA

EXAMINER

HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
----------	--------------

1731

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,778

Applicant(s)

OUELLET ET AL.

Examiner

John Hoffmann

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-21,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8-21,24 and 25 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10-12-04 has been entered.

Claim Objections

Claims 6-7 and 15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 14 is directed to an inert gas. However claim 15 indicates the gas can be hydrogen. Hydrogen is a reactive gas, not inert, thus claim 15 is a broader scope than claim 14 – it does not further limit – it expands. It is deemed that every gas except nitrogen and argon is not inert.

Claims 6 and 7 depend from claim 3. But there is no claim 3. Thus claims 6-7 do not limit a previous claim. These claims are not further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 20-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 20 requires selecting a treatment from a set of predetermined treatments. Examiner did a text search in the present specification for "select", "selecting", etc. and various synonyms – but got no hits. Examiner could also find no support in the claims as filed. This is deemed to be a prima facie showing that the selecting was not described in the specification in the manner required by 35 USC 112 (1). The burden is now on applicant to demonstrate that the requirement is complied with

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear if claim 20 requires a further deposition, or if it limiting one of the previously mentioned depositions, or both, or if it can be a deposition on a completely different substrate – even hundreds of miles away. Except for the preamble there is no connection between the steps or structure of claims 10. ^{+ 20}

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1731

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 4-5, 12-13, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant 6044192 in view of Ojha 5979188. (note this is not a combination of the references per se, rather Ojha is relied on merely as evidence as to what is already known/typical)

Grant discloses the invention as claimed – except for the layer on the reverse of the layer. Having a stress compensating layer on the reverse is a known features Ojha is cited as being evidence for this (col. 1, lines 13-18). It would have been obvious to add a layer to the Grant wafer on the reverse side, so as to prevent distortions. Grant also does not teach cooling ramping down steps, but such would have been obvious.

“...it is generally desirable to cool heated reaction product after reaction is completed; since applicant has not pointed out how step of completing reaction and cooling is inventive in instant case, court must assume that this step is but a generally desirable incident of process.” In re Edwards 707 O.G. 312; 43 CCPA 884;232 F.2d 641;109 USPQ 380 (1956).

Equally obvious (or clearly inherent) would be ramping up – one cannot achieve Grant’s temperatures without ramping up.

Grant meets the rest of the limitations as follows: Applicant’s steps a) b) d) and e) are performed by Grant in the order a) d) b) then e). It is noted c) and f) are not individual steps.

Step a): see col. 1, lines 25-29.

Step d): see col. 1, line 29-30.

Step b): see col. 3, lines 1-2.

Step d) see col. 3, lines 3-4.

It is noted that Applicant's buffer layers are subjected to both thermal treatments, therefore it is reasonable to assume that the core layers can also be subjected to both thermal treatments.

The phrase "to reduce optical absorption and compressive stress" reasonably signifies an intention. Whereas, such a phrase can also reasonably convey a result, the Office interprets claims with their broadest reasonable interpretation. Presently, the expression of an intended result creates a broader claim than would the expression of an actual result. Therefore the Office interprets the claim using the broadest meaning, namely the claim requires the intention of a result. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

The above paragraph applies to the rest of applicant's intended results. For example "to provide a first structure resistant to wafer warp". Any mental step/intention (to provide...) is not interpreted by the Office to signify that the result must be obtained.

As to the actual result of "such that said first structure undergoes an elastic deformation". It is deemed that the combination is the same as applicant's invention, so one would expect the same inherent result.

AS to the stabilization temperature – it is deemed that room temperature – or whatever temperature the Grant wafer is (prior to the heat treating) is the stabilization temperature. The term has not been defined/limited to anything which would exclude such a limitation.

Claims 4-5: it would have been obvious to have the device at whatever temperature one desires for as long as one desires prior to the beginning of the real process – because it does not matter to the processing.

Claim 12 and 18: the cited portion of Grant refers to 1000 C.

Claim 13 and 19: It would have been obvious to perform routine experimentation to determine the optimal heating temperature – depending upon the composition used. Clearly if one decided to use a glass composition that has lower melting/softening/annealing point, one would end up using lower processing temperatures.

Claims 4, 5, 8-11, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant and Ojha as applied to claim 1 above, and further in view of Liu 5094984.

Ojha does not teach the PECVD temperature (i.e. the first predetermined temperature that the wafer is prior to the heating for annealing). Col. 7, lines 29-31 of Liu discloses that the preferred temperature for PECVD is 300-450: it would have been an obvious matter of design choice and/or routine experimentation to use a temperature about 400 C, since this is what is preferred. Thus the substrate would be around 400 degrees prior to the annealing. It would have been obvious to have it and keep it at such a temperature for as long as necessary prior to transferring it to the annealing process. One would not want to cool it down because it would just take extra energy to just heat it up again. (This applies to claims 4-5 and 8-9)

Claims 10-11: it would have been obvious to ramp at what ever rate is most convenient.

Claims 14-15: Liu teaches using nitrogen. It would have been obvious to use nitrogen because it is inexpensive and inert. One would not want to use air or other gases that would/might be reactive with the substrate/waveguide.

Claim 16: if there is any nitrogen, it would have been obvious to have it constant for at least part of the process, so as to keep all the parameters constant. If one changes the flow rate, the heat flow would inherently change, requiring changing the energy input, etc.

Claim 17: it would have been obvious to use whatever appropriate flow rate works, depending upon the size of the substrate. Many large substrates would require more of a flow rate than a single small substrate.

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant and Ojha as applied to claim 1 above, and further in view of Henry 3867218.

Grant does not teach the extra layers. It is well known in the silicon processing art to provide silicon nitride layers to protect against atmospheric influences. See col. 1, lines 18-20. It would have been obvious to protect the Grant device by placing silicon nitride layers on the product surfaces so as to better protect the device.

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grant, Liu and Ojha as applied to claim 10 above, and further in view of Janz 6331445

Claim 20: essentially none of the limitations are disclosed. It would have been obvious to set all of those flow rates to be constant, so that one will have uniform properties. Janz is cited as showing it is known to use FTIR to test products. It would have been obvious to perform FTIR so that one knows what one has actually created, and then perform extra processing as needed.

Claim 21: Examiner takes Official notice that all those gases are conventionally used in the manner applicant uses. It would have been obvious to use them in the Grant method, because they are known effective gases for their known purposes. The rates and pressure would have been obvious depending upon the size of the substrate being treated, and the number being treated. The temperatures and durations: it would

have been an obvious matter of routine experimentation to determine the optimal temperatures and durations.

Response to Arguments

Applicant's arguments filed 12 October 2004 have been fully considered but they are not persuasive.

It is argued that Grant does not teach the same sequence of steps. There is no sequence explicitly mentioned in the claim. Examiner could find nothing that implicitly requires a specific order to the steps.

IT is argued that examiner gave no "patentable" weight to the stress changes. The relevant limitations do not define patentable subject matter. First, since they do substantially the same thing that applicant does, one would expect the same result. Second, there is no actual result of a change in stress – there is only a stated intention of reducing stress. Watching the artisan perform the Grant method would not give any indication the artisan's intention.

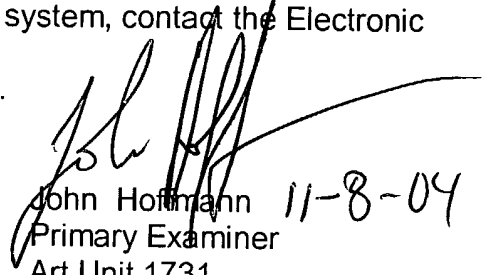
It is further argued that "core" and "buffer layer" were not given proper weight. Applicant gave no indication or evidence as to what the proper meanings of the terms are. It is also unclear how the improper weight makes the rejection improper. Most importantly, applicant's arguments do not appear to be consistent with applicant's claims. Applicant's core is deposited – but there is no cladding surrounding it. It would

seem that what is deposited in applicant's method is material-that-can-be-made-into-a-core-if-one-deposits-cladding-on-it-but-not-yet-a-real-core.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John Hoffmann
Primary Examiner
Art Unit 1731

11-8-04

jmh